



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/563,274

01/04/2006

Teruhiro Shiono

10873.1778USWO

6393

53148

7590

03/30/2010

HAMRE, SCHUMANN, MUELLER & LARSON P.C.

P.O. BOX 2902

MINNEAPOLIS, MN 55402-0902

EXAMINER

CHU, KIM KWOK

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

03/30/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/563,274	SHIONO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kim-Kwok CHU	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 12/22/2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 10-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 10-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/4/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 2627

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

*The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.*

2. Claims 1-3 and 10-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the last two paragraphs are indefinite because the paragraphs are joined by a word "or". In this case, it is not clear whether the polarized light component having a greater amplitude perpendicular to the track direction is generated by the first semiconductor laser light or provided by "an optical component ..... to switch the state of polarization .....".

Similarly, in Claim 21, the last two paragraphs are indefinite because the paragraphs are joined by a word "or". Therefore, it is not clear whether the polarized light component having a greater amplitude perpendicular to the track direction is generated by the first semiconductor laser light or provided by "an optical component ..... to switch the state of polarization .....".

Art Unit: 2627

The claims not specifically mentioned above are indefinite based upon their dependence on the indefinite Claim 1.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless -  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

4. Claims 1-3, 10, 13, 14, 16, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Sugaya et al. (U.S. Patent 5,602,825).

Sugaya teaches an optical information reproduction device having all of the elements and means as recited in claim 6. For example, Sugaya teaches the following:

With respect to Claim 1, the optical information reproduction device comprising: an information recording medium 100 (Fig. 17) that includes a recording unit 207 (laser diode) having a multilayer structure of recording layers (Fig. 16B) capable of recording information three-dimensionally (Figs. 1, 16A and 16B; pit 10 is three-dimensional) and from which can be reproduced information recorded on one of the recording layers

Art Unit: 2627

through any of the other recording layer or layers (Figs. 16A and 16B; recording layers can be selected to read the information stored in the layers) and provided with a track (Fig. 3; abstract) having a specific track pitch (abstract), with which information is recorded by forming a plurality of recording marks 10 (pits) along the track of the recording unit by a mark length recording method (Fig. 3; pits 10 have length to represent data), and when the track direction of the recording marks is assumed to be their longitudinal direction and the direction perpendicular to the track direction is assumed to be their lateral direction (Fig. 3), for recording marks 10 located substantially in the same plane (Fig. 3), the total area of elongated recording marks 10, whose longitudinal length is greater than their lateral length (Fig. 1), is greater than the total area of recording marks having other than elongated shapes (Fig. 3; elongated data 10 cover more medium area than other non-data area); a first semiconductor laser light source 207 (Fig. 17) for emitting reproduction light having a wavelength  $\lambda_1$ ; an objective lens 203 (Fig. 17) for focusing the reproduction light emitted from the first semiconductor laser light source 207 on the recording unit (recording region/sector) of the information recording medium 100 (Fig. 17); and a first photodetector 212 (Fig. 17; column

Art Unit: 2627

10, lines 3) for detecting a reproduction signal from the reflected light from the recording unit, wherein the information recording medium 100 has a track pitch of no more than 1.3 times the wavelength  $\lambda_1$  of the reproduction light (Fig. 3; abstract), the first semiconductor laser light source 207 (Fig. 17) has a characteristic such that it emits the reproduction light in which an amplitude of a polarized light component (main light beam in vertical direction above the track) that is polarized perpendicular to the track direction is greater than that of the other polarized light component (Fig. 2; the light beam distribution 24 on pit indicates that the amplitude of the vertical light component has amplitude greater than other components).

With respect to Claim 2, the reproduction light focused on the recording unit (recording region/region) is linearly polarized light that is polarized perpendicular to the track direction of the information recording medium (Fig. 2).

With respect to Claim 3, the reproduction light focused on the recording unit is elliptically polarized light whose main component is a polarized light component that is polarized perpendicular (Fig. 2; the light beam is not a perfect circular polarized light beam).

Art Unit: 2627

With respect to Claim 10, the first light source 207 (Fig. 17) further emits recording light with a wavelength of  $\lambda_2$  (Fig. 17; laser emits a light with a wavelength range from  $\lambda_1$  to  $\lambda_2$ ), the objective lens 203 focuses the recording light on a recording unit included in the recording unit (Fig. 17), and the recording light focused on the recording unit (recording region/sector) includes as its main component a polarized light component that is polarized perpendicular to the track direction of the information recording medium (Fig. 2).

With respect to Claim 13, the first semiconductor light source 207 (Fig. 17) further emits recording light with a wavelength of  $\lambda_2$ , the wavelength  $\lambda_1$  of the reproduction light is shorter than the wavelength  $\lambda_2$  of the recording light (Fig. 17; laser emits a light with a wavelength range from  $\lambda_1$  to  $\lambda_2$ ).

With respect to Claim 14, the first light source 207 further emits recording light with a wavelength of  $\lambda_2$  (Fig. 17; laser emits a light with a wavelength range from  $\lambda_1$  to  $\lambda_2$ ), the recording light is pulsed light (laser light is driven by pulse and therefore its generated beam is a pulse light), and information is recorded by using nonlinear absorption (recording medium has a nonlinear recording layer which discriminates light wavelengths).

Art Unit: 2627

With respect to Claim 16, a surface area of a light-receiving component 212 (Fig. 17) provided in the first photodetector is set to (being focused on) an area over which light conveying (read/write) target information included in the reflected light is received (Fig. 17).

With respect to Claim 18, the recording marks are voids (Fig. 1).

With respect to Claim 19, the recording marks are recording pits produced by refractive index changes (Fig. 1; pits are formed by refractive index changes as a result of thermal deformation of the layers of the recording medium).



Art Unit: 2627

***Allowable Subject Matter***

5. Claims 11, 12, 15, 17, 20 and 21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

6. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 11, the prior art of record fails to teach or fairly suggest an optical information reproduction device having following feature:

the wavelength  $\lambda_1$  of the reproduction light is different from the wavelength  $\lambda_2$ , of the recording light and the optical information reproduction device further comprises an optical component, located along the optical path between the first light source and the objective lens, for switching between a polarization state of reproduction light emitted from the first light source and a polarization state of recording light emitted from the first light source or a second light source, and for utilizing this difference in wavelength so that the reproduction light focused on the recording unit will include as its main component a polarized light component that is polarized perpendicular to the track direction of the recording unit, and

Art Unit: 2627

so that the recording light focused on the recording unit will be circularly polarized light.

As in claim 15, the prior art of record fails to teach or fairly suggest an optical information reproduction device having following feature:

a pinhole plate that is disposed along the optical path between the information recording medium and the first photodetector, and has a pinhole that transmits light conveying target information included in the reflected light.

As in claim 20, the prior art of record fails to teach or fairly suggest an optical information reproduction device having following feature:

the optical component functions substantially as a  $\lambda/2$  integer multiple plate with respect to the reproduction light.

As in claim 21, the prior art of record fails to teach or fairly suggest an optical information reproduction device having following feature:

the optical information reproduction device further comprising a second semiconductor laser light source for emitting recording light with a wavelength of  $\lambda_2$  Wherein the objective lens focuses the recording light on the recording unit included in the information recording medium, and the second semiconductor laser light source has a characteristic

Art Unit: 2627

such that it emits the recording light in which an amplitude of a polarized light component that is polarized perpendicular to the track direction is greater than that of other polarized light components.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

***Response to Remarks***

7. Applicant's Remarks filed on December 22, 2009 have been fully considered. Claims 1 and 21 have indefinite claim language problems which are inadvertently missed in the last Office Action dated 9/23/2009. Claims 1-3 and 10-21 are rejected under 35 U.S.C. 112, second paragraph. And as a result of vague claimed limitations, Claims 1-3, 10, 13, 14, 16, 18 and 19 are rejected under the prior art of Sugaya et al. (U.S. Patent 5,602,825).

Art Unit: 2627

8. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached on (571) 272-7579.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

/Kim-Kwok CHU/  
Examiner AU2627  
March 26, 2010  
(571) 272-7585

/HOA T NGUYEN/

Supervisory Patent Examiner, Art Unit 2627